UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,588	12/23/2003	Yohannes Tesfai	Cognio38US2	1587

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EXAMINER
VLAHOS, SOPHIA

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2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)	
Office Action Summary	10/707,588	TESFAI ET AL.	
	Examiner	**Art Unit**	
	SOPHIA VLAHOS	2611	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _23 December 2003_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-32_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-32_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _03 December 2003_ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date 3/18/04 3/24/04 6/9/05 1/13/06

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1.   The specification is objected to because of the following informalities:

Paragraph [0023] of the Patent Application Publication (2004/0136466) mentions:

(line 5) "antenna filter 2200(j) (i.e. a matched filter) associated with" and (line 8)

"2200(j) is defined by..." where the "2200(j)" should be "220(j)" since the numeral

"220(j)" is used in the Figures and in rest of the specification to describe receive

antenna filters.

Double Patenting

2.   The nonstatutory double patenting rejection is based on a judicially
created doctrine grounded in public policy (a policy reflected in the statute) so as
to prevent the unjustified or improper timewise extension of the "right to exclude"
granted by a patent and to prevent possible harassment by multiple assignees.
A nonstatutory obviousness-type double patenting rejection is appropriate where
the conflicting claims are not identical, but at least one examined application
claim is not patentably distinct from the reference claim(s) because the examined
application claim is either anticipated by, or would have been obvious over, the
reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed.
Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In
re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686
F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ
619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA
1969).
        A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or
1.321(d) may be used to overcome an actual or provisional rejection based on a
nonstatutory double patenting ground provided the conflicting application or
patent either is shown to be commonly owned with this application, or claims an
invention made as a result of activities undertaken within the scope of a joint
research agreement.
        Effective January 1, 1994, a registered attorney or agent of record may
sign a terminal disclaimer. A terminal disclaimer signed by the assignee must
fully comply with 37 CFR 3.73(b).

3.   Claims 1-4, 6-9 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,873,651. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following:

With respect to claim 1 of instant application 10/707588 , steps a) through d) correspond to part b) and steps i. through iv. of claim 1 of U.S. Patent No. 6,873,651. The difference between claim 1 of the instant application and claim 1 of U.S. 6,873,651 is that the order of the first and second communication devices is reversed. It would have been obvious to a person ordinary skilled in the art to reverse the order of the mentioned first and second communication devices, since referring to a communication as a first and second is equivalent to referring to them as second and first, as long as the terms are used consistently.

Claims 2, 3, 4 of the instant application correspond to claims 3,2, and 4 of U.S. 6,873,651.

Claims 6-9 of the instant application, relating to a medium encoded with instructions that, when executed, perform a method comprising the steps of claim 1-4, are also rejected based on a rationale similar to the one used to reject claims 1-4 of the instant application where it would have been obvious to a person ordinary skilled in the art to use a medium encoded with instructions (a computer program in a floppy disc for example that can be easily transferred/modified) to perform the claimed method steps.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5.   Claims 1-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Independent claims 1, 6, 15, 21, 24, 31 recite the limitation: "... the receive filter matrix comprised of a plurality of submatrices each being a convolution matrix derived from a receive filter-sub-vector..." which was not described in the specification.

Dependent claims 2-5, 7-14, 15-20, 22-23, 25-30 are also rejected since they contain the above limitation.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 21, 24 as best understood are rejected under 35 U.S.C. 103(a) as

being unpatentable over Velazquez et. al., (U.S. 2004/0104839).

        With respect to claim 21, Velazquez et. al., disclose: a. processing with a

transmit filter vector (paragraph [0079] describing Fig. 15, where the transmit

filter vector corresponds to the programmable weights of the (complex valued

FIR filters paragraph [0081]) filter array 242n) a signal to be transmitted from the

first communication device via a plurality of antennas of the first communication

device to the second communication device (see system of Fig. 2 (and Fig 9)

communication between basestation (210) and mobile user (310) paragraph

[0030] where the first communication device is the basestation , see paragraph

[0025] and Fig. 15 (see plurality of transmitting antennas) paragraph [0079]

showing the transmitter of the basestation) transmits data to a receiver (see

paragraph [0030] communication between basestation and mobile)) and b.

processing with a receive filter matrix (the filter weights of programmable filter

array 242n [0078] and see ending of paragraph [0064] where the weights can be

stored in memory (matrix)) a signal received from the second communication

device at the plurality of antennas of the first communication, (Fig. 14, showing

the receiver of the basestation (first communication device) [0024] and [0030]

where the first communication device receives signals from a mobile (the second

communication device) see plurality of antennas).

        With respect to specific details corresponding to the structure of the

transmit filter vector (same arguments are applicable to the details regarding the

structure receive filter matrix) , i.e. the transmit filter vector comprised of a plurality of transmit filter subvectors (a subvector for each antenna) and whose length corresponds to the number of taps of the tapped-delay of the filter although these limitations are not expressly disclosed by Velazquez et. al., since Velazquez et. al., teach storing the transmit filter vector (the complex coefficients of each of the filters in the transmitting/receiving filter array) in memory (see LUT mentioned above) arranging the filter coefficients in rows or columns would have been obvious to a person ordinary skilled in the art to structure the LUT of Velazquez et. al., so that it includes sub-vectors (i.e. rows or columns) that correspond to the transmit filter coefficients of corresponding antennas so that the transmit filter vector (and the receive filter matrix) to make accessing /programming (i.e updating) easier / faster with computer algorithms . With respect to the limitation that sub-vectors define one or more complex weights associated with a transmit tapped-delay line filter (this is taught by Valazquez see ending of paragraph [0086] where the programmable FIR filters are programmed using complex weights), and with respect to the transmit filter sub-vector(s) having a length corresponding to the number taps of the associated transmit tapped-delay line filter, this is inherently disclosed since Velazquez et. al., teach programmable complex valued (i.e. complex taps) FIR filters whose weights (tap weights) are stored in memory.

With respect to the limitation "receive filter matrix comprises a plurality of sub-matrices each being a convolution matrix derived from a receive filter sub-vector" see paragraph [0087] where the weights (i.e. complex coefficient of the

filters) are updated using received signals received at the basestation (see

paragraph [0089]) to compute signal propagation delay versus time, where the

received signals are understood to be the result of a convolution of the originally

transmitted signals and the channel response (conditions)).

With respect to claim 24, is rejected based on a rationale similar to the

one used to reject claim 21 above.

8.   Claim 31, as best understood are rejected under 35 U.S.C. 103(a) as

being unpatentable over Velazquez et. al., (U.S. 2004/0104839) in view of

Forssén et. al., (U.S. 5,924,020).

With respect to claim 31, claim 31 is rejected based on a rationale similar

to the on used to reject claim 21 above and Velazquez et. al., further disclose: a.

N plurality of antennas (see antennas shown in Fig. 14 and 15 (receiver and

transmitter of the basestation shown in Fig. 9 transceiver 210 see paragraph

[0058]); b. Velazquez et, al., also shows generating transmit signals and

recovering data from receive signals (see Fig. 17, functions of post processor

block 1034, paragraph [0085]); and c. a radio transceiver that transmits signals

via the N plurality of antennas and receives signals by the N plurality of antennas

to produce receive signals (see Fig. 14, Fig. 15, signal reception (receiver 212)

and transmission (transmitter 214), corresponding to the transceiver 210);

Velazquez et. al., do not identify the post processing block (block 1034 of

Fig. 17) as a baseband signal processor and that steps i and ii are performed by

the baseband signal processor. Velazquez et. al., do not expressly teach the radio transceiver performing upconversion and downconversion.

In the same field of endeavor, Forssén et. al., disclose: a baseband processing device (Fig. 4, element 68, column 6, lines 55-65); radio transceiver performing upconversion and downconversion (see Fig. 4, each of the elements 66, perform upconversion (when transmitting) and downconversion (when receiving), column 6, lines 56-59, lines 61-65).

Therefore at the time of the invention, it would have been obvious to a person ordinary skilled in the art , based on the teachings of Forssén et. al that the post processing block of Velazquez et. al, is a baseband processor , that supplies and receives transmit and receive signals. It would have also been obvious to a person skilled in the art to modify the transmitter and receiver of Velazquez et. al to perform signal upconversion and downconversion respectively, so that the transmit signals are transmitted at RF frequencies, and also received at RF frequencies, that are used in wireless signal transmission/reception.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOPHIA VLAHOS whose telephone number is 571 272 5507. The examiner can normally be reached on MTWRF 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SV
6/19/2007

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